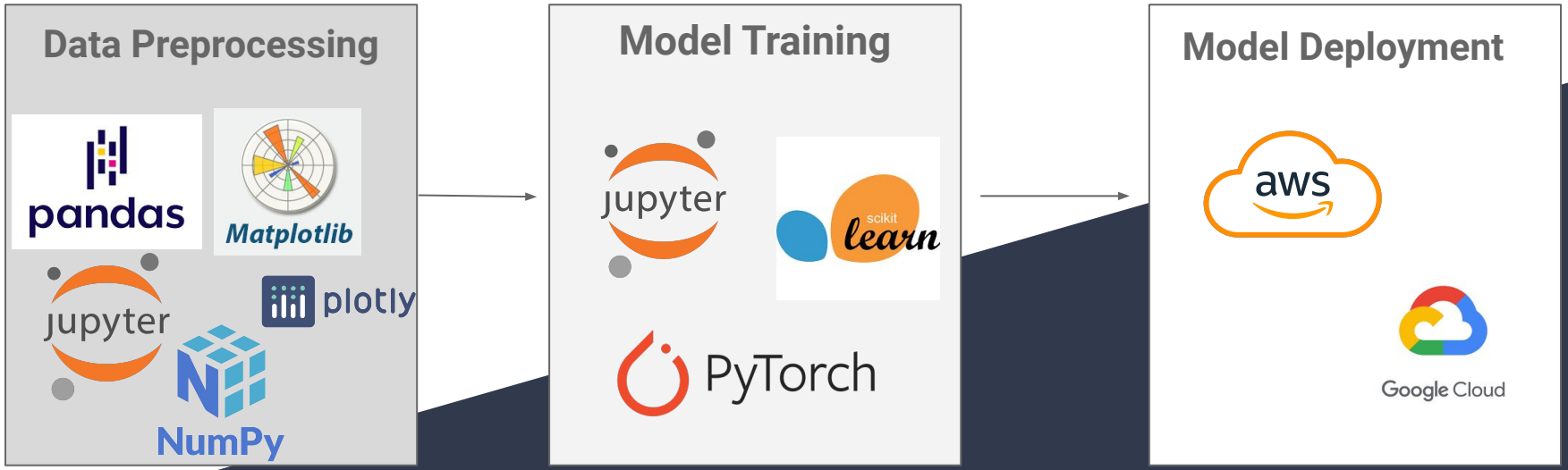
Markers for Detecting Falls in the Elderly

Timothy Peng
Data Science Capstone Project
Brainstation

Problem Statement

- One in four elderly suffers from a fall (CDC)
- Falling once doubles your chance of falling again
- Elderly (65+) account for 42% of the total healthcare spend
    - Only represent 17% of the population

Data Science Solution



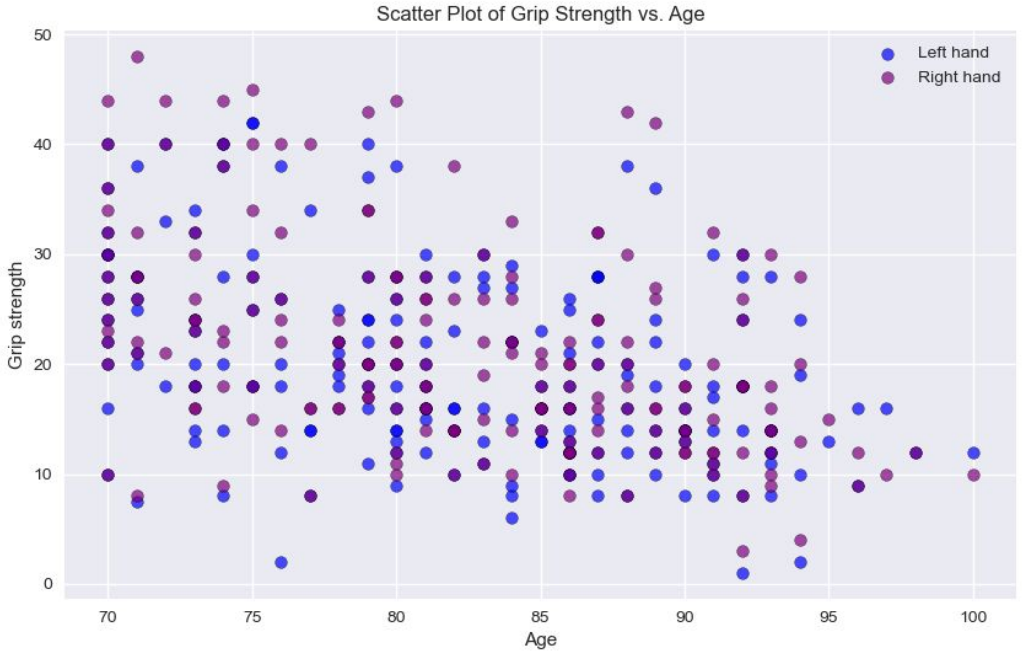
The Impact

- Canada is aging: Proportion of elderly rising from 17% to 21%

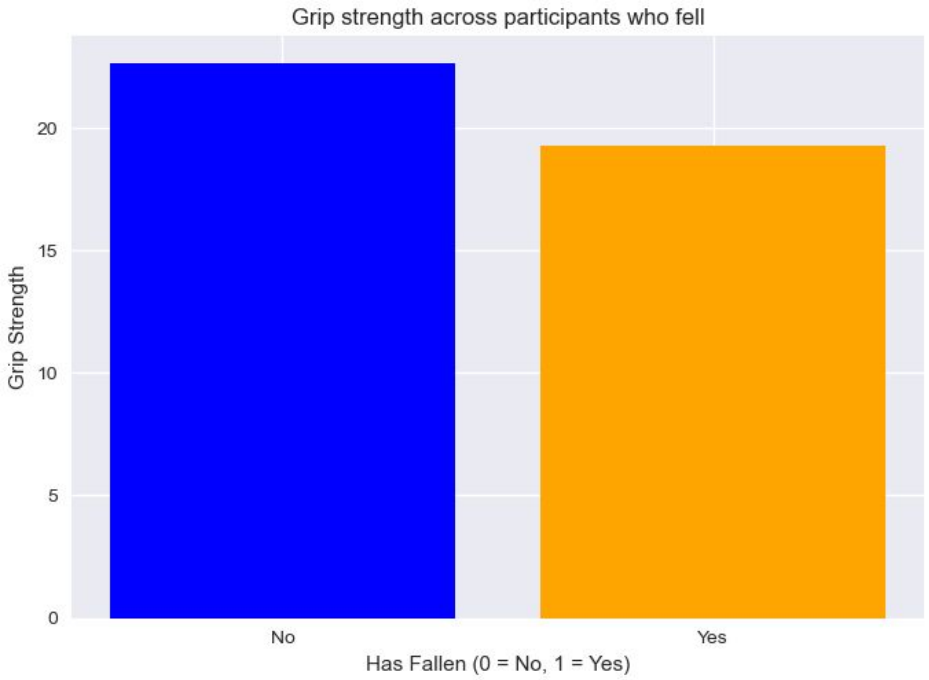
- The average spend per canadian elderly is 4x higher than someone under 65

- Over the next 10 years, population aging will add approx. $93 billion in healthcare costs

The Data


Scatter Plot of Grip Strength vs. Age
Left hand
Right hand
Grip strength
Age
0
10
20
30
40
50
70
75
80
85
90
95
100

The Data


Grip strength across participants who fell
Grip Strength
20
15
10
5
0
No
Yes
Has Fallen (0 = No, 1 = Yes)

Next steps...

- Data Processing - cleaning & normalization
- Feature engineering
- Baseline modeling - logistic regression, decision trees, random forests